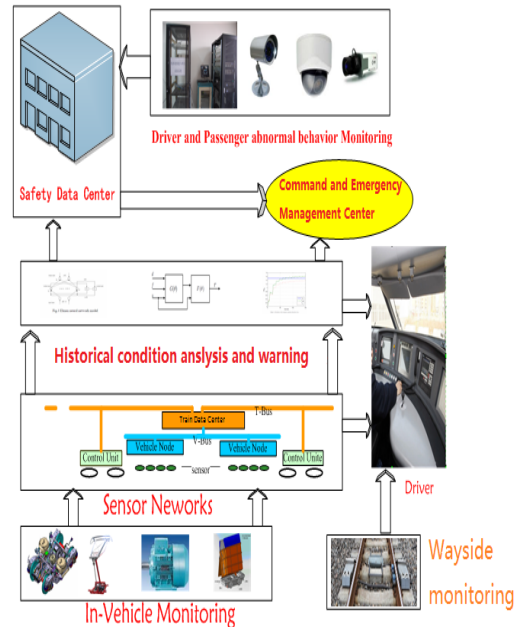


# System Architecture of a Train Sensor Network for Ubiquitous Safety Monitoring

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Train safety monitoring and fault diagnosis are critically important because of the disastrous results caused by train collisions and derailments. Train safety protection sensors network is capable of autonomously monitoring the working condition and actively control faults. Real-time train safety monitoring is a key technology in helping proactive and affordable train healthcare. It allows workers to continuously monitor changes in vital signs and provide feedback to improve maintenance schedule. Recent technological advances in sensor networks enabled the design and proliferation of wireless sensor networks capable of autonomously exerting early control-related parameters under safety thresholds, preventing some otherwise safe cases from “developing” into dangerous ones.

Our work presents an on-line Train Safety Sensor Network (TSSN) architecture, discusses its hardware and software structure for ambulatory failure status monitoring.



TSSN can early alert maintenance personnel with a diagnostic procedure via a friendly user interface and optimal supervised recovery adhering to repair standards and guidelines. TSSN promise a ubiquitous monitor vital working condition parameters. It provides a shift from passive failure management toward more proactive preventive accident care and reduces failure occurrence frequency. FTA model and simulation analysis show that TSSN contributes to train system reliability analysis.